

In the Office Action, the drawings were objected to. It is requested the objection to the drawings be held in abeyance until the claims are indicated as being allowable. The TAB circuit feature has been deleted from the claims.

Claims 6-7, 14, 19-20, 23, 25, 29-30 and 36-37 were rejected under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As set forth above, claims 6, 7, 14, 19, 20, 25, 29, 30, 36, and 37 are amended to more clearly and distinctly claim the subject matter which Applicants regard as the invention and to correct inadvertent errors. The amendments are in accordance with the examiner's suggestions and are not made for the purposes of patentability.

Claims 1, 4-5 and 10-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,084,713 to Wong in view of U.S. Patent No. 4,296,421 to Hara et al. Claims 2 and 3 were rejected as being unpatentable over the '713 patent in view of the '421 patent and further in view of U.S. Patent No. 5,066,964 to Fukuda et al. Claims 6 and 7 were rejected as being unpatentable over the '713 patent in view of the '421 patent and further in view of U.S. Patent No. 5,426,458 to Wenzel et al. Claim 8 was rejected as being unpatentable over the '713 patent in view of the '421 patent and further in view of U.S. Patent No. 5,079,189 to Drake et al. Claim 9 was rejected as being unpatentable over the '713 patent in view of the '421 patent and further in view of U.S. Patent No. 5,834,689 to Cook. Claim 13 was rejected as being unpatentable over the '713 patent, in view of the '421 patent and further in view of U.S. Patent No. 4,755,836 to Ta et al. Claims 14, 17, 18, and 23-24 were rejected as being unpatentable over the '713 patent, in view of the '421 patent and the '836 patent. Claims 15 and 16 were rejected as being unpatentable over the '713 patent, in view of the '421 patent and the '836 patent and further in view of the '964 patent. Claims 19 and 20 were rejected as being unpatentable over the '713 patent, in view of the '421 patent and the '836 patent and further in view of the '458 patent. Claim 21 was rejected as being unpatentable over the

'713 patent in view of the '421 patent and the '836 patent and further in view of the '189 patent. Claim 22 was rejected as being unpatentable over the '713 patent in view of the '421 patent and the '836 patent and further in view of the '689 patent. Claims 25-28 and 31 were rejected as being unpatentable over the '713 patent in view of the '964 patent and the '836 patent. In addition, U.S. Patent No. 5,278,584 to Keefe et al. was cited against these claims. Claim 30 was rejected as being unpatentable over the '713 patent in view of the '964 patent and the '836 patent and further in view of the '458 patent. Claims 33-35 were rejected as being unpatentable over the '713 patent in view of the '421 patent and the '584 patent and further in view of the '964 patent. Claims 36 and 37 were rejected as being unpatentable over the '713 patent in view of the '421 patent and the '584 patent and further in view of the '458 patent. All the rejections and objections are respectfully traversed.

A. Claims 1, 4, 5, and 10-12 Are Patentable Over the Cited References

The present invention is directed to a ink jet cartridge structure. The structure includes one or more semiconductor substrates mounted on a substrate holder. The substrate holder is also referred to throughout the application as a substrate carrier. The substrate holder or substrate carrier has a top surface, one or more substrate wells and side walls. The substrate wells include at least one ink feed slot. Additionally, one or more of the side walls contain a cooling structure such as fins for convectively removing heat from the substrate holder.

The '713 patent to Wong relates to a thermal ink jet printing systems. The '713 patent does not provide a cooling structure for convectively removing heat from a substrate holder. There is nothing in the '713 patent with regard to convectively removing heat from the substrate holder using fins which are disposed on a sidewall portion of the structure. The only method disclosed in the '713 patent for cooling the substrate is by

means of the ink itself. (See column 2, lines 24-40 of the '713 patent). Such method only involves conductive cooling.

There is also nothing in the '713 patent with regard to forming an ink reservoir body integral with the substrate holder or a coating the substrate holder with silicon dioxide. The '713 patent is therefore manifestly deficient in providing for applicants' claimed invention.

Furthermore, the '713 patent provides no motivation to combine its invention with that of the '421 patent to Hara. As mentioned above, there is nothing in the '713 patent with regard to providing a convective cooling structure such as fins, locating the fins on a side wall portion, an ink container being formed integral with a substrate holder, or coating the substrate holder with silicon dioxide.

The '421 patent to Hara et al. describes a device for recording comprising ejecting a liquid recording medium by heat energy. The device is totally different from the device described in the '713 patent. The ink jet printing device of the '713 patent is a top shooter type printing device whereas the device described in the '421 patent is a side shooter type printing device. The apparatus described in the '421 patent does not have the panel 50 having an elongate groove 52 therein for feeding ink from an ink reservoir on the opposite side of the panel 50 to the heater resistors which are located on a substrate 12 attached to surface 54 of the panel 50 as described in the '713 patent. There is nothing in the '421 patent with regard to semiconductor substrates mounted on a substrate holder which contains one or more substrate locator wells therein.

The differences between the '713 apparatus and the '421 apparatus are significant because the structures cannot merely be combined to provide applicants' claimed invention without some direction in the references for how to make the combination. The examiner has merely found selected items in each of the references and combined those items to provide applicants' invention without direction or motivation in the references to make the combination.

Furthermore, the '421 patent describes cooling the base plate of the device at column 35 using a heat discharging fin 148 only used in conjunction with Peltier cooler element 147 and a fan motor 149. The cooling features of the '421 patent thus require at least three elements to be effective, a Peltier cooling element, a heat discharging fin and a fan motor. There is no suggestion in either of the references to use a cooling fin in the absence of the Peltier cooler and fan. There is also no suggestion for providing cooling fins on a sidewall portion of a substrate holder having one or more substrate wells and an ink feed slot in each of the well bases. Hence, combining the references, if such were possible would not provide all of the features and limitations of the claimed invention.

In addition to the above, the '421 patent also fails to describe an ink reservoir body formed integral with a substrate holder. According to Fig. 36 of the '421 patent a liquid is fed to pipe 132 through a feeding pipe 134 from a liquid supplying portion 133. It is clear from Fig. 36 of the '421 patent that the liquid supplying portion or ink reservoir is not integral with the heating element base plate 127. In the '713 patent, the support panel 50 is attached to a housing 96 containing a flexible bladder 84 which functions as an ink storage chamber. There is no feed pipe extending from the storage chamber to the support panel 50. Accordingly, the references fail to provide any suggestion for how to combine such unrelated structures to provide the claimed invention.

It is submitted that the combination of the '713 patent and the '421 patent is improper for lack of motivation to make the combination and even if the combination were made, the combined references fail to provide all of the features of the claimed invention. Accordingly, reconsideration and withdrawal of the rejection of Claims 1, 4, 5 and 10-12 are respectfully requested.

B. Claims 2 and 3 are Patentably Distinguished Over the Cited References

Claims 2 and 3 depend on claim 1 and relate to a metal substrate holder having the features of Claim 1 explained above. As set forth above, '713 patent does not

provide a cooling structure for convectively removing heat from a substrate holder. There is nothing in the '713 patent with regard to convectively removing heat from the substrate holder using fins which are disposed on a sidewall portion of the structure. The only method disclosed in the '713 patent for cooling the substrate is by means of the ink itself. (See column 2, lines 24-40 of the '713 patent). The '713 patent actually leads away from using a metal heat sink in column 1, lines 46-50 and provides no suggestion to use a metal substrate holder.

Furthermore, the '421 patent fails to cure the deficiencies of the '713, as set forth above, the above discussion of the deficiencies of the '421 patent with regard to Claim 1 being likewise incorporated by reference here with respect to this rejection. As set forth in column 18, lines 59-61, the substrate itself is made of aluminum rather than a substrate holder as required by Claims 2 and 3 of the invention. In column 35, lines 58-68 of the '421 patent, the base plate 140 is bonded to an aluminum plate 146. A Peltier cooler 147 and fin 148 are attached to the aluminum plate 146. The '421 patent thus suggests only one means for cooling the base plate and that means requires the Peltier cooler, fin and a cooling fan. However, use of a heat sink unit is said by the '713 patent to be "...proven to be impractical from a technical and economic standpoint." (See column 1, lines 49-50 of the '713 patent). Accordingly, there is no suggestion in the references to combine these references to provide a substrate carrier composed of metals such as aluminum, beryllium, copper, gold, silver, zinc, tungsten and alloys of two or more of the foregoing.

The '964 patent to Fukuda et al. relates to use of a heat-capacity member having a hollow liquid path 100 therein for flow of ink. Like the '421 patent, there is nothing in the '964 patent with regard to providing cooling fins on a sidewall portion of a substrate holder having one or more substrate wells and an ink feed slot in each of the well bases. As set forth above, the '713 patent clearly leads away from using a heat-capacity member as set forth in the '964 patent. Hence, there is no motivation to combine

the '964 patent with the '713 patent. Even if the references were combined, there is nothing in either reference to suggest that the support panel 50 itself be made of metal as set forth in Claims 2 and 3.

Accordingly, the '964 patent provides nothing to cure the deficiencies of the '713 or '421 patents. Reconsideration and withdrawal of the rejection of claims 2 and 3 are respectfully requested.

C. Claims 6 and 7 Are Patentable Over the Cited References

Claim 6 depends on claim 1. Claim 7 depends on claim 6. They both relate to providing a coating or layer of poly(xylylene) on the substrate holder itself. The '713 and '421 patents fail to suggest coating a substrate holder with poly(xylylene) and have the other deficiencies with respect to Claim 1 as set forth above. The discussion of the deficiencies of the '713 and '421 patents with regard to independent Claim 1 is incorporated herein by reference.

The '458 patent to Wenzel et al. relates to use of a poly-p-xylylene coating for an orifice plate of a thermal ink-jet printhead. See column 1, lines 54-58. In contrast, claims 6 and 7 require the substrate holder, rather than a nozzle plate, be coated with the poly(xylylene) coating. The '458 patent clearly does not suggest the features of Claims 6 and 7. Also, the '458 patent does not cure the deficiencies of the '713 and '421 patents. There is nothing in the '458 patent with regard to use of a substrate holder containing side walls and fins on one of the sidewalls.

Accordingly, the '458 patent in combination with the '713 and '421 patents fail to provide the claimed invention. Reconsideration and withdrawal of the rejection to claims 6 and 7 are respectfully requested.

D. Claim 8 Is Patentable Over the Cited References

Claim 8 depends on claim 1. It relates to a substrate holder or carrier made of a material containing a high content of carbon fibers or graphite. As set forth above, the '713 and '421 patents fail to suggest or describe the present invention. The above discussed deficiencies of the '713 and '421 patents are incorporated here by reference with respect to the rejection of Claim 8.

The '189 patent relates to subunits for full width RIS and ROS arrays. According to the '189 patent, the subunit includes a support which can be a daughterboard/heat sink. However, the '713 patent clearly leads away from the use of a heat sink as provided in the '189 patent. Accordingly, there is no motivation to combine the '189 patent with the '713 patent and the '421 patent to provide the claimed invention.

The '189 patent does not suggest a substrate holder having side walls where one or more of the side walls contain fins. Accordingly, the '189 patent provides nothing to cure the deficiencies of the '713 and '421 patents. Reconsideration and withdrawal of the rejection to claim 8 is respectfully requested.

E. Claim 9 Is Patentably Distinguished Over the Cited References

Claim 9 depends on claim 1. It relates to a substrate holder made out of a metal-ceramic composite. As set forth above, the '713 and '421 patents fail to suggest or describe the present invention. The above discussed deficiencies of the '713 and '421 patents are incorporated here by reference with respect to the rejection.

The '689 patent relates to a composite structure which is said to be used as an electronic package to house an electrical devices such as an integrated chip. There is nothing in the '689 patent with regard to ink jet printers, hence the '689 fails to provide motivation to combine the references. As set forth above, the '713 patent leads away from the use of a heat sink and therefore would not suggest the heat sink material of the '689 patent or the '421 patent. The '421 patent fails to suggest using a metal-ceramic structure

in place of the aluminum plate 146. It is submitted that the '689 patent is thus not properly combinable with the '713 and '421 patents. There is no motivation in any of the references to make the combination. Furthermore, there is no direction in any of the patents for how the combination is to be made and how the composite structure of the '689 patent should be incorporated in the '713 and '421 patents to provide the claimed invention.

Even if the '689 patent were combined with the '713 and '421 patents, it would still not cure all of the deficiencies of these references to provide the claimed invention. There is nothing in the '689 patent with regard to a substrate holder having side walls wherein at least one of the side walls contains fins. In view of the lack of motivation to combine the references, the rejection of claim 9 should be withdrawn.

F. Claim 13 Is Patentable Over the Cited References

Claim 13 is dependent on claim 1. It relates to one or more carriage positioning devices adjacent one of the side walls of the substrate holder. The carriage positioning devices 110 and 112 are used to align the substrate holder in a printer carriage. Because claim 1 is patentable over the '713 and '421 patents as discussed above, claim 13 is likewise patentable over the '713 and '421 patents for the same reasons. The '836 patent fails to cure the deficiencies of the '713 and '421 patents.

As set forth above, the '713 and '421 patents fail to provide all of the elements of the invention of Claim 1. The above discussed deficiencies of the '713 and '421 patents are incorporated here by reference with respect to the rejection.

The '836 patent relates to a printhead cartridge and carriage assembly for use in an ink jet printer. The '836 patent describes alignment features or registration means which ensure that the printhead cartridge is locked in a given, fixed and repeatable position on a carriage. The alignment means are also referred to in sets of "lands". These alignment features are provided on the front of the cartridge and on the inside of the face

plate. The first set of lands, 78, is preferably comprised of a triangular set of lands, most preferably arranged in an isosceles triangle, with one land at the top center of the front of the cartridge and two lands at the lower corners thereof. The second set of lands preferably comprised of a set of lands provided on either side of the printhead mechanism to define a line. The third set of lands preferably comprises a single land on one side of the printhead mechanism. (column 4, lines 59-68; column 5, lines 1-27).

The carriage positioning devices of the present invention are used to align the substrate holder to a carrier and are located adjacent one of the side walls of the substrate holder. In the '836 patent, the "lands" are located on the front of the cartridge, on the sides of the printhead mechanism itself rather adjacent sidewall of a substrate carrier or holder. There is nothing in the '836 patent with regard to use of alignment devices adjacent the side walls of a substrate holder for use in aligning a substrate holder to a carriage. Furthermore, the '836 patent fails to suggest one or more substrate holder side walls wherein at least one of the side walls contains fins. Accordingly, the '836 patent adds nothing to the '713 or '421 patents and does not cure the deficiencies thereof. It is therefore requested that the rejection of claim 13 be reconsidered and withdrawn.

G. Claims 14, 17, 18 and 24 Are Patentable Over the Cited References

Claim 14 is an independent claim relating to a method for making a print cartridge structure for a multi-color thermal ink jet printer. According to the claimed method, a multi-function substrate carrier is cast or molded from one of a group of materials and the carrier, as cast or molded contains side walls, wherein one of the side walls contains fins for heat removal. The substrate carrier is also attached to an ink reservoir body.

Claims 17 is dependant on claim 14 and provides a coating of silicon dioxide to the carrier. Claim 18 is dependant on claim 17 and further provides that the silicon dioxide coating have a thickness in the range of from about 0.1 to about 2.5

microns. The features of Claims 23 and 24 are incorporated in Claim 14 and Claims 23 and 24 have been cancelled.

The discussion above relative to the improper rejection of Claims 1, 4 and 5 over the '713 patent in view of the '421 patent also applies to the rejection of Claims 14, 17 and 18 as the elements of the claims which distinguish both sets of claims over the references are similar. The discussion with respect to the patentability of Claims 1, 4 and 5 is hereby incorporated with respect to the rejection of Claims 14, 17 and 18 and thus will not be repeated. Similarly, the rejection of claims in view of the '836 reference have been discussed above with reference to the rejection of Claim 13. The discussion with respect to the patentability of Claim 13 is hereby incorporated with respect to the patentability of Claim 14 over the '836 reference.

Because the references are improperly combined and even if combined fail to provide all of the features and elements of the claimed invention, the rejection of Claims 14, 17 and 18 should be reconsidered and withdrawn.

H. Claims 15 and 16 Are Patentable Over the Cited References

Claims 15 and 16 are dependant on Claim 14 and provide that the substrate carrier be molded or cast from specific metals. In this regard, the discussion above relating to the patentability of Claims 2 and 3 over the '713, '421 and '964 patents is applicable to the rejection of Claims 15 and 16. Because claim 14 is patentable over the '713, '421 and '836 patents, as discussed above, Claims 15 and 16 are likewise patentable over the '713 patent in view of the '421, '836 and '964 patents for the same reasons. The discussions above with respect to the rejections of Claims 2, 3 and 14 are hereby incorporated and will not be repeated.

Because the combination of patents '713, '421, '836 and '964 fail to provide all of the elements of the claimed invention, reconsideration and withdrawal of the rejection of Claims 15 and 16 is respectfully requested.

I. Claims 19 and 20 Are Patentable Over the Cited References.

Claims 19 and 20 depend from Claim 14 and are thus patentable over the '713 patent in view of the '421 patent and the '836 patent for the same reasons Claim 14 is patentable over these references. The above discussion of the patentability of Claim 14 is incorporated herein by reference.

Claims 19 and 20 relate to providing a coating or layer of poly(xylylene) on a substrate carrier. Claims 19 and 20 are patentable over the '458 patent for the same reasons claims 6 and 7 are patentable over the '458 patent. The discussion above concerning the patentability of claims 6 and 7 is hereby incorporated by reference with respect to the patentability of Claims 19 and 20.

As set forth above, there is no motivation to combine the '713, '421, 836 and '458 patents and even if combined, the combined teachings fail to provide the claimed invention. It is therefore requested that the rejection of claims 19 and 20 be reconsidered and withdrawn.

J. Claim 21 Is Patentable Over the Cited References

Claim 21 depends on Claim 14 and relates to a substrate carrier made of a material containing a high content of carbon fibers or graphite. Claim 21 is patentable over the '713, '421 and '836 patents for the same reasons Claim 14 is patentable over these patents. The discussion above concerning the patentability of claim 14 is hereby incorporated by reference.

Furthermore, Claim 21 is patentable over the '189 patent for the same reasons Claim 8 is patentable over the '189 patent. The discussion concerning the patentability of Claim 8 is also incorporated by reference with respect to the patentability of Claim 21.

The references are improperly combined to reject Claim 21 and even if combined fail to provide all of the features of the claimed invention. It is therefore requested that the rejection of claim 21 be reconsidered and withdrawn.

K. Claim 22 Is Patentable Over the Cited References

Claim 22 depends on Claim 14 and relates to a substrate holder or carrier made out of a metal-ceramic composite. Claim 22 is patentable over the '713, '421 and '836 patents for the same reasons that Claim 14 is patentable over these references. The discussion concerning the patentability of Claim 14 is incorporated herein by reference. Claim 22 is also patentable over the '689 patent for the same reasons Claim 9 is patentable over that reference as set forth above. The discussion concerning the patentability of Claim 9 with respect to the '689 reference is also hereby incorporated by reference.

Furthermore, there is no motivation to combine the '713, '421, '836 and '869 patents. It is therefore respectfully requested that the rejection of claim 22 be reconsidered and withdrawn.

L. Claims 25-28 and 31 Are Patentable Over the Cited References

Claim 25 is an independent claim and provides additional patentable features of the claimed invention. Specifically, Claim 25 relates to a nose piece for an ink jet printer cartridge, the nose piece including a substantially metal structure having a top surface containing one or more substrate locator wells, side walls and at least two alignment devices adjacent one of the side walls. One or more of the side walls contain fins for heat removal. A plurality of slots are provided along the perimeter of the side walls for attaching the nose piece to an ink reservoir. At least two alignment devices are provided adjacent one of the side walls for aligning the substrate holder or carrier and reservoir body to a printer cartridge.

Claims 26 depends on Claim 25 and describes a nose piece comprised of aluminum or zinc. Claim 27 also depends on Claim 25 and describes a nose piece which is coated or layered with silicon dioxide. Claim 28 depends on Claim 27 and describes the coating of silicon dioxide having a thickness from about 0.1 to about 2.5 microns. Claim 31 depends on Claim 25 and describes an ink reservoir body attached to the nose piece using the slots which are provided along the perimeter of the side walls of the nose piece.

As set forth above the primary reference, the '713 patent leads away from use of a metal nose piece or heat sink and thus is not properly combined with the '964 and '836 patents as set forth more fully above with respect to the patentability of Claims 1-5 and 10-12. The discussions concerning the patentability of claims 1-5 and 10-12 are incorporated here by reference with respect to the rejection of Claims 25-28 and 31 over the '713 patent.

Furthermore, the combined references fail to provide all of the features of the claimed invention. There is nothing in any of the references with regard to a plurality of slots along a perimeter of the side walls for precisely attaching the nose piece to an ink reservoir body. This element of the claim is totally ignored in the rejection of the claims. The examiner also makes what appears to be an inadvertent reference to the '189 patent to Keefe et al. It is not understood what features of Claims 25-28 and 31 are supposedly disclosed by the '964 and '189 patents. The '189 patent does not cure the deficiencies of the other references with respect to the claimed features described above.

It is submitted that the '713, '964 and '836 patents are improperly combined as described above and even if combined fail to provide all of the features of the claimed invention. Reconsideration and withdrawal of the rejection of Claims 25-28 and 31 are respectfully requested.

M. Claim 30 Is Patentable Over the Cited References

Claim 30 is dependant on Claim 29 which depends on claim 25. Claim 29 relates to a nose piece comprising a coating or layer of poly(xylylene). Claim 30 relates to the nose piece of Claim 29 comprising a coating or layer of poly(xylylene) which has a thickness ranging from about 0.1 to about 10 microns.

As a beginning observation, Claim 29 was not rejected under §103(a) by the Examiner. Because Claim 29 was not rejected by the Examiner over the references, dependant Claim 30 is likewise allowable over the references. In addition, Claim 30, is patentable over the '713, '964 and '836 patents for the same reasons Claim 25 is patentable over these references, and Claim 30 is patentable over the '458 patent for the same reasons Claims 6-7 and 19-20 are patentable over this reference. The discussions concerning the patentability of Claims 6-7, 19-20 and 25 are hereby incorporated by reference. Furthermore, there is no motivation to combine the '713, '964, '458 and '836 references and if combined, the references fail to provide all of the features of the claimed invention. It is therefore respectfully requested that the rejection of claim 30 be reconsidered and withdrawn.

N. Claims 32, 38 and 39 Are Patentable Over the Cited References

Claim 32 is an independent claim relating to a substrate carrier for an ink jet printer made of a metal body containing, four sides and a substantially planar substrate surface. At least two of the four sides of the metal body contain cooling fins. In addition, at least one of the four sides contains a surface which is essentially perpendicular to the substrate surface for containing contact pads for electrical contact with a printer. The substrate surface includes four sides perpendicular to the substrate surface and one or more substrate locator wells. Each well contains a well base for attaching one or more semiconductor substrates and at least one ink feed slot in each well base.

Claim 38 is dependant on Claim 32 and relates to an ink reservoir body removably attached to the substrate carrier for flow of ink through the ink chamber to a semiconductor substrate attached to the well base. Claim 39 is also dependant on Claim 32 and relates to a substrate carrier wherein at least one side of the substrate carrier contains one or more notches for removably attaching an ink reservoir to the carrier.

Claim 32 is patentable over the '713 and '421 patents for the same reasons Claims 1, 14, and 25 are patentable over the cited references. Also, because claims 38 and 39 depend on claim 32, they are patentable over '713 and '421 patents for the same reasons Claim 32 is patentable over the '713 and '421 patents. The discussions concerning the patentability of Claims 1, 14 and 25 over the '713 and '421 patents are incorporated by reference.

The '584 patent relates to an improved ink flow path between an ink reservoir and vaporization cavities in the inkjet printhead. The '584 patent is cited for showing a side of the cartridge which is perpendicular to the substrate for containing contact pads. However, there is nothing in the '713, '421 and '584 patents as combined which provides a metal substrate carrier having four sides wherein at least two of the sides contain cooling fins and wherein the carrier contains one or more notches for removably attaching an ink reservoir to the carrier.

Accordingly, the '713, '421 and '584 patents do not provide all of the features of the claimed invention. Reconsideration and withdrawal of the rejection of Claims 32, 28 and 39 is respectfully requested.

O. Claims 33-35 Are Patentable Over the Cited References

Claim 33 is dependant on Claim 32 and relates to a substrate carrier comprised of aluminum or zinc. Claim 34 is dependant on Claim 33 and relates to a substrate carrier further comprising a layer of silicon dioxide. Claim 35 depends on Claim 34 and relates to a substrate carrier comprising a layer of silicon dioxide which has

a thickness ranging from about 0.1 to about 2.5 microns. Because Claim 32 is patentable over the '713, '421 and '584 patents, as discussed above, Claims 33-35 are likewise patentable over these references for the same reasons.

Likewise Claims 33-35 are patentable over on the '964 reference for the reasons Claims 2-3, 15-16 and 26 are patentable over the '964 reference. All of the previous discussions regarding the improper combination of these references are incorporated by reference and will not be repeated. Furthermore, even if the references were combined, they would fail to provide all of the features of the claimed invention as set forth above with regard to the patentability of Claim 32. It is therefore requested that the rejection of Claims 33-35 be reconsidered and withdrawn.

P. Claims 36 and 37 Are Patentable Over the Cited References

Claim 36 is dependant on Claim 33, which is dependant on Claim 32. Claim 36 provides the added feature of a layer of poly(xylylene) on the metal substrate carrier. Claim 37 depends on Claim 36 and provides a preferred thickness of the poly(xylylene layer). Claim 36 is substantially similar to Claims 6, 19 and 29. (It is noted that the Examiner did not reject Claim 29 over the references). Claim 37 is substantially similar to Claims 7, 20 and 30. Accordingly, the foregoing discussions relating to the patentability of Claims 6, 7, 19, 20 and 30 apply to the patentability of Claims 36 and 37 and thus will not be repeated.

Furthermore, because Claims 36 and 37 depend from Claims 32 and 33 and Claims 32 and 33 are patentable over the '713, '421 and '584 patents, Claims 36 and 37 are likewise patentable over these references for the same reasons. As discussed above, the '584 patent relates to coating a nozzle plate rather than a metal substrate carrier. The patentability of Claims 6, 7, 19, 20 and 30 with respect to the patentability of Claims 36 and 37 are hereby incorporated by reference.

There is no motivation in the references to combine the '713, '421, '584 and '458 references and if combined, the references fail to provide all of the features of Applicants' claimed invention. Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 36 and 37.

Applicants wish to point out that there is no specific rejection of Claim 29 over the references. It is thus assumed that Claim 29 as amended above is patentable over the references. Should the examiner impose a §103(a) rejection of Claim 29, reference is made to the discussion of the patentability of Claims 6-7, 19-20, 30 and 36-37 above which discussion is incorporated by reference with respect to the patentability of Claim 29.

In summary, it is submitted that the examiner has failed to make out a prima facie case of obviousness in view of the specific admonition of the primary reference (the '713 patent) with respect to the use of a heat sink in an ink jet printing device. Furthermore, the examiner has failed to provide an indication of motivation in the references to make the combinations he is suggesting. Nevertheless, the references, even if combined, do not provide all of the features of the claimed invention as set forth in detail above.

Accordingly, Applicants respectfully submit that Claims 1-22 and 25-39 as amended are patentable over the cited references. Applicants therefore request that all of the rejections be withdrawn and Claims 1-22 and 25-39 be allowed at the earliest convenience.

Respectfully submitted,

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